

IN THE CLAIMS

Please cancel claims 1-38, 47-48 and 50-53.

LISTING OF CLAIMS

Claims 1-38 (cancelled)

39. (currently amended) A method for copper plating of advanced interconnects comprising immersing said interconnects in a copper plating bath comprising an aqueous solution of an acid and a copper salt and at least one of a carrier compound; a water-soluble, mercapto-containing organic brightener compound; and a leveler compound containing single and multiply charged centers—; wherein said leveler compound is selected from the group consisting of poly(allylamine); poly(allylamine hydrochloride); polyaniline, sulfonated, 5 wt. % in water, 75 mole % sulfonated; poly[bis(2-chloroethyl)ether-alt-1,3-bis[3-(dimethylamino)propyl]urea, quaternized; poly[N,N'-bis(2,2,6,6-tetramethyl-4-piperidinyl)-1,6-hexanediamine-co-2,4-dichloro-6-morpholino-1,3,5-triazine; polyacrylamide; poly(acrylamide-co-diallyldimethylammonium chloride); poly(diallyldimethylammonium chloride); poly(melamine-co-formaldehyde), partially methylated; poly(4-vinylpyridine), 25% cross-linked; and poly(1,2-dihydro-2,2,4-trimethylquinoline).

40. (original) The method as claimed in claim 39 wherein said acid is sulfuric acid.

41. (original) The method as claimed in claim 39 wherein said copper salt is selected from the group consisting of copper sulfate, copper acetate, copper fluoborate, cupric nitrate and copper pyrophosphate.

42. (original) The method as claimed in claim 41 wherein said copper salt is copper sulfate.

43. (original) The method as claimed in claim 39 wherein said carrier compound is selected from the group consisting of a polysaccharide compound, polyethylene glycol and poly (ethylene oxide).

44. (original) The method as claimed in claim 43 wherein said polysaccharide carrier compound is selected from the group consisting of starch, cellulose, amylopectin and amylose.

45. (original) The method as claimed in claim 39 wherein said water-soluble, mercapto-containing organic brightener is selected from the group consisting of *N*-methylallyl-*N*'-methylthiourea; tetramethylthiuram disulfide; ethylethylthiomethyl sulfoxide; ammonium diethyldithiocarbamate; dimethyl-2-thioxo-1,3-dithiole-4,5-dicarboxylate; 3-mercapto-1-propanesulfonic acid sodium salt; 3-mercapto-1-propanesulfonic acid; bis (2-mercaptoethyl) sulfide; ethylene trithio carbonate; ethanethiol; 2-mercaptoethanol; monothioglycerol (1-thioglycerol); 1,2-ethanedithiol; and thiodiethanol.

46. (original) The method as claimed in claim 45 wherein said water-soluble, mercapto-containing organic brightener is selected from the group consisting of ammonium diethyldithiocarbamate, 3-mercapto-1-propanesulfonic acid sodium salt, and 3-mercapto-1-propanesulfonic acid.

Claims 47-48 (cancelled)

49. (currently amended) The method as claimed in claim ~~47-46~~ wherein said ~~polymeric~~ leveler compound is selected from the group consisting of poly[(bis(2-chloroethyl)ether-alt-1,2-bis[3(-dimethylamino)propyl]urea, quaternized, and poly(diallyl dimethylammonium chloride).

Claims 50-53 (cancelled)

54. (original) The method as claimed in claim 39 further comprising a brightener/carrier molecule.

55. (original) The method as claimed in claim 54 wherein said brightener/carrier molecule is polymeric protein.

56. (original) The method as claimed in claim 39 further comprising a carrier/leveler molecule.

57. (original) The method as claimed in claim 56 wherein said carrier/leveler molecule is selected from the group consisting of poly[bis(2-chloroethyl)ether-alt-1,3-bis[3-(dimethylamino)propyl] urea, quaternized, and poly(melamine-co-formaldehyde).

58. (original) The method as claimed in claim 39 wherein said carrier is present in the composition in an amount ranging from about 2 to about 1000 parts per million parts water.

59. (original) The method as claimed in claim 39 wherein said leveler is present in the composition in an amount ranging from about 2 to about 1000 parts per million parts water.

60. (original) The method as claimed in claim 39 wherein said brightener is present in the composition in an amount ranging from about 5 to about 100 parts per million parts water.

61. (original) The method as claimed in claim 39 wherein said carrier/brightener is present in an amount ranging from about 5 to about 1000 parts per million parts water and said carrier/leveler is present in an amount ranging from about 2 to about 1000 parts per million parts water.

62. (original) The method as claimed in claim 39 wherein said compounds are added either individually or as combinations to said aqueous solution.

63. (original) The method as claimed in claim 39 wherein a current between 3 mA/cm² and 40 mA/cm² is applied to said solution.

64. (original) The method as claimed in claim 63 wherein the wave form of said current is selected from the group consisting of direct current, pulse current and pulse reverse current.